5. Small Group Discussion: Economic and Business Dimension

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Each of three breakout groups reflected a sub-region: the southern cone, including Brazil; northern South America; and the Caribbean, Central America and Mexico. Each group was asked to address three questions for its sub-region: 1) How does the economic and business dimension of the information revolution vary? 2) What drives these differences? and 3) Are there issues or problems that are common across the sub-region?

Group 1: Southern South America

Southern South America, with the exception of Paraguay, is ahead of the rest of Latin America in existing infrastructure and business environment. However, to better understand sub-regional variation, the countries were evaluated along eight dimensions:

1. The competitiveness of the telecommunications market;
2. Whether or not government enables the growth of information technology;
3. The state of venture capital;
4. Availability of personal credit to pay for IT-related transactions;
5. IT-issues related to language;
6. The education system;
7. Intellectual property rights; and
8. Market size;

Within the sub-region (Brazil, Uruguay, Argentina, Chile, and Paraguay), Chile has the most competitive telecommunications market, followed by Uruguay, Brazil, Argentina, then Paraguay. Uruguay was ranked relatively high despite

the presence of a state-owned monopoly because that monopoly "works," and there is competition in providing value-added services. Taxes are a major issue for Brazil, whose tax structure is too complex with too many taxing authorities. Not surprisingly, some companies are leaving Brazil to seek better tax environments elsewhere. Because only two telephone providers operated in the country until 1999 (Telefónica de Argentina and Telecom Argentina), Argentina was not considered particularly competitive, although opening all areas of telecommunications to an unlimited number of licensees in November 2000 was clearly a step in the right direction. Paraguay's telecommunications infrastructure and industry are far and away the least competitive of the group.

The most important role government can play is to make possible telecom reform. The ranking of countries along this dimension mirrored that of the previous category, with Chile again highest. The overriding concern in the remaining countries is corruption, which undermines government effectiveness and authority. At present, there is more trust in local and regional governments in Brazil than in the national government. Similarly, trust in government in Argentina is quite low, although better-educated people do believe government can make a positive impact on the development of information technologies.

None of the countries has in place laws and regulatory structures to permit venture capital to flourish, but those regimes are developing. That said, good telecommunications policies and a competitive economy are not enough to attract venture capital. The case in point is Chile, which is not attracting large amounts of venture capital despite its high marks on the previous two dimensions. In part, the country has a history of controls on foreign investment, which have only recently been lifted. By contrast, despite Brazil's less-than-perfectly-competitive economy, complicated taxes and level of corruption in government, it is a big enough market to be able to attract more venture capital than Chile. While having access to foreign capital is valuable, relying too heavily on foreign investment means that profits flow out of the country. What is needed (in addition to foreign investment) is indigenous venture capital, as appears to be developing in Brazil and Argentina.

Again, the problems entailed by the low levels of credit card use in the region were cited. Countries have to find innovative ways to extend services to individuals who would otherwise not have the ability to pay. Brazil has been a leader in getting around the shortage of credit cards with innovations such as smart debit cards. In Argentina, people can now pay cash for Internet services in places where they would normally pay utility bills.

The region's lack of English competence poses a short-term problem because only two percent of all Web content is currently in Spanish. Only individuals of a certain level of education are able to access and understand the majority of information online. However, since virtually everyone in the region can understand Spanish, and the number of Spanish-language Web sites has been increasing, language issues are unlikely to pose a problem for the region in the long run.

A particular challenge for both southern South America and all of Latin America is education. Although countries of the Southern Cone do have higher levels of educational attainment than Latin America overall, primary and secondary education is still deficient. Local educational systems produce quality in some places but not in large enough numbers to accommodate the needs of the new economy. Argentina, Uruguay, and Chile are regarded as better than Brazil. Yet regional discretion in Brazil, coupled with IT, gives its regions the flexibility to break away from the traditionally centrally controlled education system, and to experiment with forms of distance learning and computer-aided instruction. . Uruguay has an educated workforce, and as a result has a growing indigenous software industry. Paraguay's educational system is particularly poor.

Finally, in terms of protecting intellectual property rights (IPR), Chile also ranked better than other Southern Cone countries – and Paraguay fell to the bottom. IPR was considered a problem for the whole region, however, because of shortcomings in enforcement.

Looking out ten years, Chile would most likely be notable for embracing the information revolution, while Brazil will stand out in sheer market size. Argentina and Brazil appear to be moving in the "right" direction, although questions remain. In terms of its economic standing and progress in the information revolution, Mexico could be considered part of this leading group, while Paraguay should not.

Group 2: Northern South America

This region of Latin America suffers from political and economic instability that has encouraged a "brain drain," which stifles not only the development of IT but also economic development in general. Would getting good information systems in place be the stabilizing force that this region needs? Absent a crisis or other focusing event, IT seems likely to be neither stabilizing nor destabilizing in the region. In the short run, the Internet may increase the social gap both between and within countries. It will have a different impact on urban and on rural

communities. For instance, will the development of the Internet encourage people in rural areas to stay there? Absent a real change in the circumstances of farming, being connected might simply make it easier for them to leave.

Perhaps, over a longer time horizon IT could build stability. If better information systems permitted middle class voices to be heard, that might empower the middle class in ways that would not necessarily lead to greater political stability in the short run but would lay the basis for more transparent and accountable government in the longer run.

At this point, however, such a prospect is not likely because there are few resources; advertisers are not willing to support media that oppose ruling government elites. Still, a recent case is suggestive of the possibilities. When Venezuela's president, Hugo Chavez, made a deal with Cuba's Fidel Castro, many of the deal's provisions – like bartering Venezuelan goods for Cuban doctor and other professional services – were questionable in the norms of international trade. Details of the deal were suppressed from traditional Venezuelan media, but those details did leak out via the Web. As governments learn about the potential dangers of the Internet (to them), they may attempt to move against it in various ways, but they will also face sharp limits on how much they can control information flows.

Group 3: The Caribbean, Central America and Mexico

This third group is unique because of its "outliers." Some of the mostly small island states in the Caribbean have per capita incomes that are among the highest in Latin America and are much further along in IT penetration and use. These include the Cayman Islands, the Bahamas, St. Barts, Aruba, the British Virgin Islands, and the U.S. Virgin Islands. These outliers share several preconditions: their governments are founded on trust and transparency; they have a well-established rule of law, high literacy rates, economic cultures in which business can prosper, populations that are fluent in English, and, perhaps most importantly, political stability. It should be noted, however, that these countries' IT advances were driven by the needs of their commerce – tourism and banking, including, unfortunately, money laundering – not the other way around. The existing electronic infrastructure associated with these industries made it easier for them to incorporate new information technologies.

In Central America, Costa Rica is the outlier. Intel has based an assembly plant there, which has had a major impact on Costa Rican employment and growth. In attracting Intel, Costa Rica took politically risky steps, such as committing to teach English in primary schools. But Costa Rica had advantages similar to the Caribbean islands -- a good rule of law; a population that mostly has a "working" knowledge of English; a program to wire every school in the country, so that much of the younger population will soon become computer and Internet savvy; and a sizable number of trained engineers available to work in and IT plant or in supporting industries. Moreover, Costa Rica has a business school, INCAE, founded with help from the Harvard Business School. Costa Rica has, in effect, created an IT *maquiladora*. In addition to Costa Rica, other bright spots in Central America are: El Salvador, which has a great deal of entrepreneurship; and Panama, which is aided by its dollarized economy and by the considerable American influence.

Mexico, in many ways more akin to the southern South America countries with respect to IT, faces both good and bad prospects with respect to the information revolution. On the positive side, the existence of NAFTA and the proximity of the Mexicans living in the United States make it easier for Mexico to access information, human capital, financing, and technology than other countries in the region. The transition to the new presidential administration appears to be going smoothly, and the new president has articulated a desire to move the information revolution forward in Mexico. Human capital exists at the Monterrey Technical Institute, the "Mexican MIT," which produces large numbers of trained engineers and information scientists and in "Silicon Valle," a region of Mexico in which IT start-ups are beginning to thrive. On the other hand, Mexico faces challenges of corruption, large income disparities, and rapid population growth – which stretch local economies and the educational system. In addition to these challenges, the 51 percent domestic ownership requirement for all companies and the major role that nationalized industry plays in the economy are big obstacles to IT development in Mexico.

Bottom Lines

The differences across the region – in particular, among the leaders, the outliers and the rest – are stunning. If the leaders share many obstacles, they also have some differing advantages: Brazil is a large market, Mexico has its connections to the United States, Chile is the most competitive telecom market, Argentina has recently opened up, and Uruguay has a state-owned telecom monopoly but one that works pretty efficiently. The outliers illustrate the "pull" of *using* IT to become more efficient in existing industries, just as the *maquiladoras* do in Mexico.

Those outliers also shared a number of preconditions – transparent governance, relatively low levels of corruption, rule of law, favorable business climates, decent to good levels of English among the population, and the presence of trained technical people. Those are the preconditions for moving forward with IT, and they are also preconditions for economic growth more generally.

It is hard to be optimistic about the rest, especially northern South America, where violence is growing, the lure of populist politics is present, and the brain drain is a fact of life. Those talented people who can leave, do leave, often for Miami, the magnet that has attracted the greatest amount of Latin American talent, and is an, if not *the,* IT capital of Latin America. Miami is much more than the Cuban community. While there are limits to Miami's potential to unite Latin America around information technology or other issues, Miami still has advantages that are not present within the region.. Its attraction underscores that even where the region should have an advantage – for instance in producing content, not just for the region but for Spanish-speakers elsewhere – it faces competition, from Miami but also from Los Angeles and other U.S. cities that combine technological prowess with large Spanish-speaking populations.